

# The Lab Report

Volume 3, Issue 2

July 2013

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## In This Issue...

The NSP Crime Lab Road Show is back by popular demand! The Nebraska State Patrol Crime Lab is pleased to announce upcoming opportunities for **FREE TRAINING** on Latent Print evidence collection/hands-on processing techniques and Controlled Substances legislation, report wording, and drug submission guidelines. We will be hosting day-long training dates in various locations throughout the state beginning with the first training in Lincoln, NE on August 29 (see page 2 for additional dates/locations/detailed topic information)!

Other topics featured in this edition of The Lab Report include: current case backlogs/turnaround times, arson investigation evidence submission/analysis, fracture match analysis, laboratory relocation plans, and some helpful hints on evidence training in the field!

If you have any questions/concerns regarding the topics related to this issue of The Lab Report, please do not hesitate to contact us (laboratory staff contact information - pg. 10).

Enjoy!

Amy Weber (Firearm/Toolmark Section Analyst - editor, The Lab Report)

## The Backlog Corner

**Biology Unit:** 145 assignments (approx. 5 month turnaround time)

**Physical Sciences Unit:**

**Firearm/Toolmark cases:** 45 assignments (approx. 10 month turnaround time)

**NIBIN:** 146 assignments (approx. 8 month turnaround time)

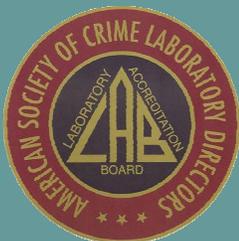
**Latent Fingerprints Section:** 26 assignments (approx. 2-3 week turnaround time)

**Chemistry Unit:**

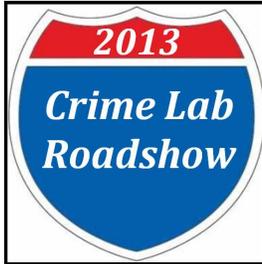
**Controlled Substances:** 747 assignments (approx. 3 month turnaround time)

**Toxicology:** 54 assignments (approx. 2 month turnaround time)

**Trace:** 1 assignments (approx. 3 weeks - 1 month turnaround time)



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## 2013 NSP Crime Lab Roadshow: Coming Soon to a City Near You!

### Training Topics

#### Controlled Substances

#### Latent Print Evidence

#### When and Where?

August 29, 2013	Lincoln	Southeast Community College
September 6, 2013	Grand Island	Nebr. Law Enforcement Training Center
September 20, 2013	Omaha	DEA Facility (Emerald Pointe Building)
September 26, 2013	Scottsbluff	Hampton Inn and Suites
October 11, 2013	Norfolk	Northeast Community College
October 17, 2013	North Platte	Mid-Plains Community College, North Campus

**Time?** Class time is 0900-1630

**Who Can Attend?** Any law enforcement officer in Nebraska

**Cost?** **FREE!!!!!!** Class sizes will be limited (30 people)

#### Continuing Education Credit?

Those attending are eligible to receive **5.25** hours of Continuing Education Credit

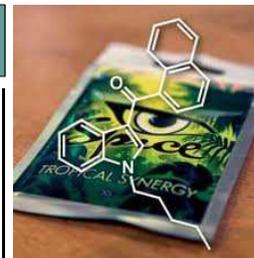
If you or someone you know is interested in attending, please contact **Pam Zilly** ([Pam.Zilly@nebraska.gov](mailto:Pam.Zilly@nebraska.gov)) or **Aaron Koning** ([Aaron.Koning@nebraska.gov](mailto:Aaron.Koning@nebraska.gov)) for more information and to register for class! (402) 471-8950.



### 2013 Road Show Training Topic: Controlled Substances

Over the past two years, the drug enforcement community has seen a tremendous increase in the types of abused substances. Many of these substances fall into the category of synthetic cannabinoids (K2) and bath salts. As a result, these new types of substances have created a unique challenge for the drug sections of many crime labs. Rapidly changing chemicals make drug identification difficult. In addition, many synthetics are not specifically controlled and may fall into the category of analogues. Although the NSP Crime Laboratory is diligently working to provide as much information regarding these types of items in our reports as possible, the resulting wording can be confusing to law enforcement officers and prosecutors. Crime Lab Road Show training will include a general explanation of common substances being submitted to the lab as well as clarification of report wording/results.

Due to the increase in case complexity coupled with the overall increase of submitted drug cases, Road Show instructors will also provide a review of laboratory submission guidelines for drug evidence. The lecture will also include the new NSP Crime Laboratory recommendations for tablet/capsule evidence submission.



### 2013 Road Show Training Topic: Latent Print Evidence

The advancement of fingerprint processing techniques coupled with emerging technology in recent years has made it possible for officers and crime lab analysts to develop friction ridge detail on various items with a much better success rate. Outdated 35mm film cameras are being replaced with digital SLR cameras; items with glossy, non-porous surfaces, or those of a high monetary value, can be examined for friction ridge detail with RUVIS (Reflective Ultra-Violet Imaging System) without causing damage to the items; and more accurate/faster Nebraska AFIS and FBI IAFIS searches allow for both fingerprint and palm print identifications. The advancement in technology has allowed for faster case processing times by the NSP Crime Lab Latent Section, resulting in the reduction of the Latent section backlog from one year to an approximate 2-3 week turnaround time!

The goal of this class is to raise the awareness of local law enforcement about the best field practices in latent print processing techniques, as well as to educate attendees with regard to the capabilities of the NSP Crime Lab when it comes to latent print processing and examination. The class will address the most common questions and concerns when dealing with latent print evidence: which processing techniques should and should not be used on various items, latent photography do's and don'ts, proper collection and packaging of latent print evidence, etc. The practical part of the class will provide **hands-on training** through both basic and more advanced latent processing techniques, digital photography, obtaining legible impressions from the subjects involved, etc.





## Arson Investigation Evidence Submission and Analysis

One aspect of trace evidence analysis is the examination of debris and materials associated with arson. Normally, the analysis of debris submitted from the scene of a suspected arson is directed toward identifying the presence of liquid accelerant residues. **It is imperative that arson samples be collected as quickly as possible after the fire is extinguished and the scene is safe.** The reason for quick sample collection is due to the fact that accelerants are volatile and will evaporate.

The most common type of accelerant is gasoline. Other common accelerants are charcoal lighter fluids, mineral spirits, and paint thinners. For an accelerant to be identified, it **must** stand out from the background of pyrolysis products/substrate background of the sample. This will vary for each sample submitted.

### Handling/Packaging/Submission of Arson Debris

There are three types of containers that are **recommended** for packaging arson debris:

- 1) Clean, unused lined or unlined paint cans (gallon size is recommended, quart size is acceptable)
- 2) Kapak arson plastic bags
- 3) Nylon arson plastic bags

### The “Do’s” and “Don’ts” of Arson Debris Packaging

#### **DO:**

- Take steps to ensure that lids on paint cans are sealed tightly.
- Kapak or nylon bags may be heat-sealed or sealed with tape (Scotch Brand 3M 2” clear packaging tape is recommended as the cheaper brands do not seal as well).
- Check seals by pressing on bags and observing if air escapes.
- Watch out for sharp items such as broken glass, nails, wood fragments, etc. that may puncture bags. If you have samples that are known to contain sharp objects/debris from the scene of the fire, paint cans are a safer packaging option overall.
- Initial across all seals onto the container.

#### Chemistry Unit

*Celeste Laird (Mgr.)*

*Mike Auten (Trace)*



## Arson Investigation Evidence Submission and Analysis

### The “Do’s” and “Don’ts” of Arson Debris Packaging (continued)

#### Don’t:

- Do **NOT** use regular zip lock plastic bags - this type of packaging is permeable and will allow accelerants to escape.
- Please do **NOT** fill the containers (cans or bags) more than 3/4ths full.
- Please do **NOT** dry the arson samples prior to submission because the accelerants will evaporate.

### Handling/Packaging/Submission of Liquid Accelerant Samples

Liquid samples of accelerants require a different type of packaging from arson debris. Accelerants such as gasoline will dissolve paper liners in most lids and will also dissolve some plastic bottles and cap liners.

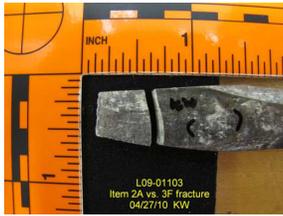
The **BEST** type of packaging is the Clan Lab Sampling Kit. The kit consists of an outer plastic bottle with lid that, in turn, contains an inner glass vial with a tight fitting Teflon lined lid.

- Do **NOT** use any type of BAG for liquid samples.
- Do **NOT** use any type of plastic vial - they will melt.
- Seal the caps of vials containing liquid accelerants with evidence or clear tape such as 3M tape.
- 5ml of sample is more than enough for the purpose of analysis.

Whenever possible, please take the time to submit control samples of the materials (i.e. carpet, wood flooring, floor tile, etc.) for analysis. Control samples are used for comparison with what is extracted from the submitted evidence samples to see what chemicals may have come from the sample itself and what may be an accelerant.

**If you have any questions, please call Mike Auten at 402-471-8950.**





**Firearm/Toolmark**  
**Section**

*Kent Weber (Sup.)*  
*Amy Weber*  
*Sarah Zarnick*

**Trace Section**  
*Mike Auten*

**Questioned Documents**  
*Pam Zilly*



## Fracture Match Analysis

A lesser known, yet extremely valuable type of analysis performed at the NSP Crime Laboratory in the Firearm/Toolmark section as well as in the Trace Analysis and Questioned Documents sections is Fracture Match Analysis (also referred to as Physical Fit Analysis). Fracture match analysis is typically performed in conjunction with toolmark cases, however there are many instances in which fracture match analysis is the main focus. The information presented below is provided to educate submitting agencies with regard to recognition of case examples where fracture match analysis would be probative, types of evidence that can be analyzed, evidence packaging, etc.

What is fracture match analysis? Fracture match analysis consists of the examination of two or more objects either through physical, optical, or photographic means which permits an analyst to conclude whether the objects were either one entity or were held/bonded together in a unique arrangement.

### **Common Types of Fracture Match Evidence**

- **Rigid Materials**
  - ⇒ **Metal** : keys, knife blades, gun parts, tools, vehicle components
  - ⇒ **Plastic**: vehicle headlights/plastic parts
  - ⇒ **Glass**: vehicle windows, house windows, etc.
  - ⇒ **Wood**
- **Non-Rigid Materials**
  - ⇒ **Tape**: duct tape, electrical tape
  - ⇒ **Paper**
  - ⇒ **Paint**

Some common case examples that can produce the above listed evidence are as follows:

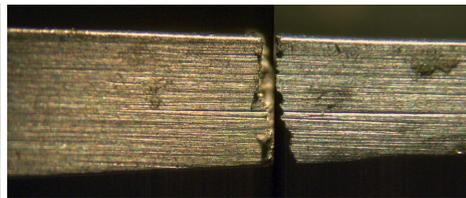
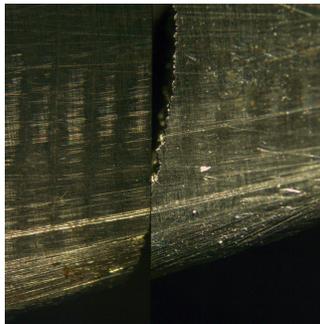
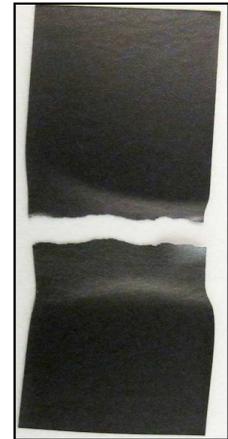
- Homicide/Attempted Homicide cases in which the tip of a knife blade is left behind in a victim and a broken knife is found nearby or even on the suspect/suspect home.
- Kidnapping cases or cases in which tape has been used to bind a victim and a used roll of tape is collected from the suspect, etc.
- Burglary cases (screwdriver tips left behind, broken lock picks, etc.)
- Shooting scenes (vehicle glass, home windows that have been shot)
- Accident reconstruction cases (hit and run, vehicular homicides, etc.)

## Fracture Match Analysis

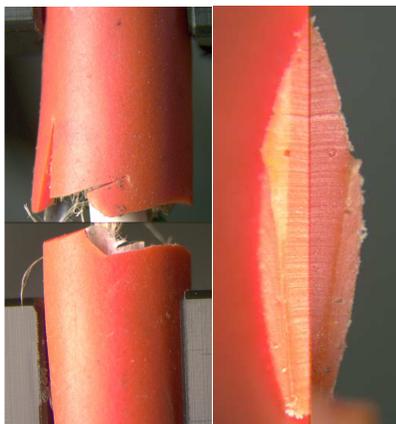
At the NSP Crime Laboratory, fracture match analysis is divided between three analytical sections: firearm/toolmark, trace, and questioned documents. The below sections examine the following types of evidence:

- **Firearm/Toolmark:** any rigid materials - metal, plastic, wood, glass (fracture match analysis only), tape (fracture match only)
- **Trace:** tape (chemical analysis only), paint
- **Questioned Documents:** paper products

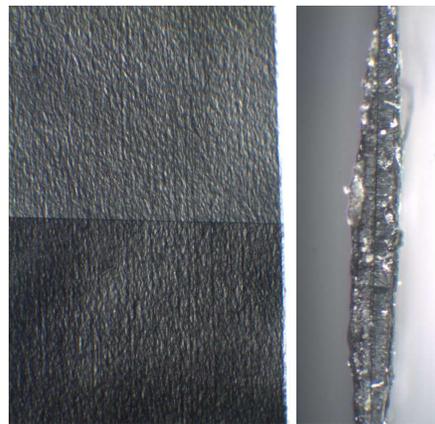
Once fracture match evidence is submitted to the crime laboratory for analysis, the appropriate section will be notified and proceed with analysis. The analyst will record the presence of manufacturers markings, random toolmarks continuing from one evidence item to the next, and any other evidence that two evidence items were once joined together as a single unit.



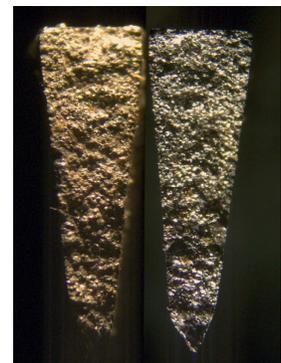
Fracture Match involving the broken tip of a knife located at the scene of a burglary vs. the knife blade located in the suspect's possession.



Fracture match involving a section of insulated wire found at a burglary scene vs a section located at a suspect residence (L). Individual characteristics imparted from the tool used to cut the wire (R).



Fracture match involving two sections of cut electrical tape, exhibiting longitudinal manufacturer marks (L). Cross-sectional view of individual marks left on both pieces of tape from the suspect cutting tool (R).





### NSP Crime Laboratory Relocation Plans (2014)

The NSP Crime Laboratory is planning to relocate by the end of 2014. It has long been recognized that the building housing the NSP Crime Laboratory cannot be expanded nor modified to meet the growing casework demands for the state of Nebraska. The NSP Crime Laboratory recently received the support and funding needed to relocate to a larger and more efficiently designed facility with potential for future growth. The building/relocation project is currently in the early stages of the planning process and our new Lincoln location has not yet been finalized. Keep your eyes open for more details about this exciting project in future issues of *The Lab Report*. We will make every attempt possible to keep you, our submitting agencies, informed with up-to-date information as plans for the new building progress!



If you have any questions/concerns with regard to the NSP Crime Laboratory building relocation plans, please do not hesitate to contact NSP Crime Laboratory Director, Pam Zilly (Pam.Zilly@nebraska.gov), 402-471-8950

### Hints on Evidence: Time Saver!

Everyone has been new to a job at some point in their lives and has had to undergo various forms of on-the-job training. Law enforcement officers new to an agency are no different and are required to complete a field training program. As a submitting agency, **please be mindful to include training with regard to the collection, packaging, and proper submission of evidence items for laboratory processing.** Officers who have been thoroughly trained early-on in their careers will be less likely to run into submission issues in the future! It is important to stress to trainees (and to remind veteran officers) that it is **ALWAYS** better to call the laboratory **FIRST** prior to submitting evidence if there are any questions as to packaging, submission, and/or analysis! This small action will be a **BIG time saver** at the end of the day and will alleviate submission issues on the part of the submitting officer and laboratory evidence technicians!

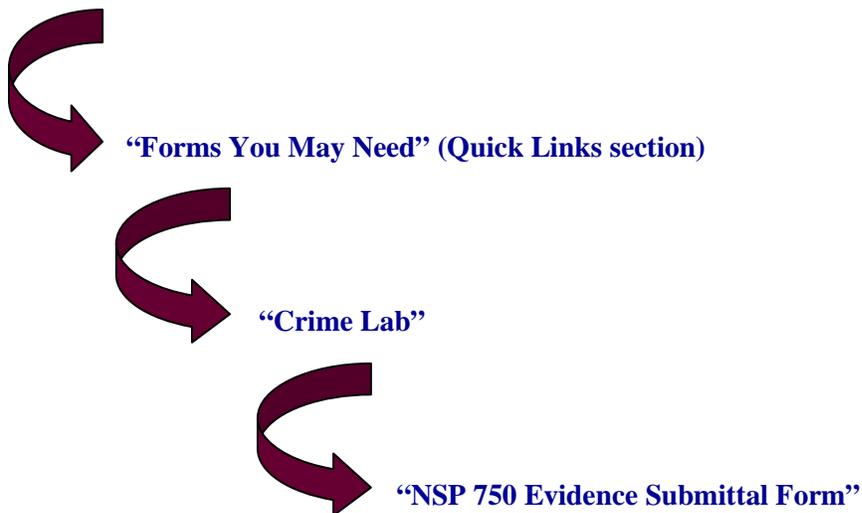


## Hints on Evidence: NEW Evidence Submittal Form!!



Since the implementation of the new NSP Crime Laboratory Evidence Submittal Form (750) in April 2012, we have been instructing our submitting officers to utilize the NEW form as opposed to the older versions. Despite attempts to educate, there are still a large number of submitters who are using the OLD 750 Evidence Submittal Form. If you or your agency still have copies of the OLD form in your possession (office, vehicle, etc.) please make every attempt to discard the electronic and/or paper copies and begin using the NEW 750 form!

The NEW 750 Evidence Submittal Form can be found on the NSP website. You can navigate to forms utilized by the crime laboratory by going to the main NSP webpage ( <http://www.statepatrol.nebraska.gov/>)



You can also follow the below link to the NSP 750 Evidence Submittal Form to print out paper copies of the NEW submittal form or can fill out the electronic copy on your computer/MDT!

[http://www.statepatrol.nebraska.gov/media/11180/nsp\\_750\\_evidence\\_submittal\\_form.pdf](http://www.statepatrol.nebraska.gov/media/11180/nsp_750_evidence_submittal_form.pdf)

Please be mindful to start using the new NSP 750 Evidence Submittal Form when sending evidence to the NSP Crime Laboratory! This not only helps you, the submitter, it also helps the evidence technicians/analysts when processing case evidence!

If you have ANY questions with regard to the new 750 Evidence Submittal Form, please do not hesitate to call the main laboratory number: 402-471-8950





**Laboratory Director:**  
**Pam Zilly**

**Nebraska State Patrol  
Crime Lab  
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Lincoln, NE 68506**

**(main) 402-471-8950  
(fax) 402-471-8954**

**Hours of Operation:**  
**Monday-Friday  
8am—5pm**

**Evidence Receipt Hours:**  
**Monday-Friday  
9am-4pm**

**To contact the crime lab  
with general laboratory  
questions, call the main  
phone number or email  
Vicki Hopkins at:**

**[Vicki.Hopkins@nebraska.gov](mailto:Vicki.Hopkins@nebraska.gov)**

**The Lab Report Editor:  
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